

CLAIMS

This listing will replace all prior versions and listing of claims in the subject application.

1. (Currently Amended) A process for making surface-modified ceramic materials comprising:
 - a. creating a ~~thin~~ layer of a titanium phosphate on a base material;
 - b. subsequently treating with a strong base; and
 - c. washing the product of step b to form a first intermediate;
 - d. contacting the intermediate with a strong acid; and
 - e. subsequently washing the product of step d to form a second intermediate having a gelatinous layer of titanium oxide hydrate on the base material.
2. (Canceled) The process of claim 1 further comprising drying the product after washing.
3. (Canceled) The process of claim 2 further comprising calcining the dried product.
4. (Canceled) The process of claim 1 further comprising:
 - a. contacting the washed product with a strong acid; and
 - b. subsequently washing the product to form a gelatinous layer of titanium oxide hydrate on the base material.
5. (Currently Amended) The process of claim ~~[[4]]~~ 1 further comprising drying the ~~product with the gelatinous layer~~ second intermediate.
6. (Original) The process of claim 5 further comprising calcining the dried product.

7. (Currently Amended) The process of claim 4 further comprising treating the product second intermediate with a dopant.
8. (Original) The process of claim 5 further comprising sequentially treating the dried product with a dopant and then drying.
9. (Original) The process of claim 8 further comprising calcining the dried product.
10. (Original) The process of claim 1 where the base material is titanium dioxide.
11. (Currently Amended) The process of claim 1 where the base material is selected from the group consisting of a ceramic metal oxide, a ceramic mixed oxide, a mixed metal oxide, ~~or~~ and a mixture thereof.
12. (Original) The process of claim 11, where the ceramic metal oxide is selected from the group consisting of TiO_2 , ZrO_2 , Al_2O_3 , and mixtures thereof.
13. (Original) The process of claim 8 where the dopant is a noble metal resistant to strong base and strong acid.
14. (Original) The process of claim 12 where the ceramic metal oxide consists of nano-sized particles with a size between 20 and 100 nm.
15. (Original) The process of claim 1 where the strong base is KOH.

16. (Currently Amended) The process of claim [[4]] 1 where the strong acid is HCl.
17. (Original) The process of claim 7 wherein the dopant is selected from the group consisting of a colloidal metal, a colloidal complex, an organic compound, an inorganic salt, and mixtures thereof.
18. (Currently Amended) The process of claim [[4]] 1 further comprising:
- satulating the surface of the second intermediate with a water-soluble organic or inorganic compound;
 - subsequently drying; and
 - calcining.
19. (Currently Amended) The process of claim [[4]] 1 further comprising:
- satulating the surface of the second intermediate with a colloid material;
 - subsequently drying; and
 - calcining.
20. (Currently Amended) The process of claim 17 wherein the dopant is a colloidal metal and the final product has a ~~thin~~ metal oxide surface layer.